Claims

1. An electronic measuring device for detecting a process variable connectable to a two-wire line for providing the supply energy and for digital communication with a process control, and for this purpose in particular, comprising a two-wire terminal, and including a sensor means for measuring the process variable, a controlling device for controlling components of the sensor means, a voltage measuring device for measuring the supply voltage applied through the two-wire line, and a current control unit by means of which the current for supplying the measuring device can be appropriately set as a function of the supply voltage measured by the voltage measuring device.

2. The electronic measuring device of claim 1, wherein a device for determining the instantaneous power loss is present, and the controlling device connected with said device and the current control unit predetermining a variable desired value for the current control unit as a function of the determined power loss.

3. The electronic measuring device of claim 1, wherein a pre-given maximum value for the input current may be given to the current control unit.

4. The electronic measuring device of claim 2, wherein the device for determining an instantaneous power loss is connected with a capacitor so as to measure the temporal development of the voltage at the capacitor and thereby the power loss.

5. The electronic measuring device of claim 2,
wherein the device for determining the instantaneous power loss includes a micro-controller, an A/D converter connected with said micro-controller, and a capacitor connected upstream of an ultrasonic transmitter for storing energy for the sensor means.

6. The electronic measuring device of claim 1,
wherein a device is present by means of which the frequency of occurrence of sensor excitements can be determined without performing a measurement.

7. The electronic measuring device of claim 1,
wherein a current limiting means is present connected with the current control unit.

8. The electronic measuring device of claim 1,
wherein a power loss due to a power demand excess is dissipated by a controlled output of a pulse by the sensor means without entailing a measurement.

9. The electronic measuring device of claim 1,
wherein a power loss due to a power demand excess is transformed into heat.

10. The electronic measuring device of claim 1,
wherein a power loss due to a power demand excess is determined through a current sensing resistor within the current control unit.

11. An electronic measuring device for detecting a process variable connectable to a two-wire line for providing the supply energy and for digital communication with a process control, and for this purpose in particular, comprising a two-wire terminal, and including a sensor means for measuring the process variable, a controlling device for controlling components of the sensor means, and a current control unit by means of which the current

drawn by the measuring device through the two-wire line can be appropriately set as a function of the current drawn by the sensor means.

12. The electronic measuring device of claim 11,
wherein the current control unit includes two controls, one keeping the total current constant, and one providing for the fact that a little current is flowing through a shunt arm at all times.

13. The electronic measuring device of claim 11,
wherein a device for determining an instantaneous power loss is present, and the controlling device connected with said device and the current control unit predetermining a variable desired value for the current control unit as a function of the determined power loss.

14. The electronic measuring device of claim 13,
wherein the device for determining an instantaneous power loss is connected with a capacitor so as to measure the temporal development of the voltage at the capacitor and thereby the power loss.

15. The electronic measuring device of claim 13,
wherein the device for determining an instantaneous power loss includes a micro-controller, an A/D converter connected with said micro-controller, and a capacitor connected upstream of an ultrasonic transmitter for storing energy for the sensor means.

16. The electronic measuring device of claim 11,
wherein a device is present by means of which the frequency of occurrence of sensor excitements can be determined without performing a measurement.

17. The electronic measuring device of claim 11,
wherein a current limiting means is present connected with the current control unit.

18. The electronic measuring device of claim 11,
wherein a power loss due to a power demand excess is dissipated by a controlled output of a pulse by the sensor means without entailing a measurement.

19. The electronic measuring device of claim 1,
wherein a power loss due to a power demand excess is transformed into heat.

20. The electronic measuring device of claim 11,
wherein a power loss due to a power demand excess is determined through a current sensing resistor within the current control unit.

21. A method for operating an electronic measuring device for detecting a process variable connectable to a two-wire line for providing the supply energy and for digital communication with a process control, wherein the supply voltage applied through the two-wire line is measured in the measuring device, and the current for supplying the measuring device is modified in a temporally appropriate manner as a function of the supply voltage measure by the voltage measuring device.

22. The method of claim 21,
wherein the voltage drop is measured at a resistor for determining an instantaneous power loss.

23. The method of claim 21,
wherein the power loss instantaneously generated in the measuring device is determined for determining an appropriate power input.

24. The method of claim 21,
wherein said method is realized in a measuring device including a sensor means, in which the distance from the filling product surface of a filling product present in a receptacle is determined by means of ultrasonic pulses.

25. The method of claim 21,
wherein said method is realized in a measuring device including a sensor means, in which the distance from the filling product surface of a filling product present in a receptacle is determined by means of radar pulses.

26. A method for operating an electronic measuring device for detecting a process variable connectable to a two-wire line for providing the supply energy and for digital communication with a process control, wherein the total current drawn through the two-wire line by the measuring device is adapted by a current control unit to a sensor current drawn by a sensor means.

27. The method of claim 26,
wherein a loss current in a shunt arm is kept at a minimum.

28. The method of claim 26,
wherein the power loss instantaneously generated in the measuring device is determined for determining an appropriate power input.

29. The method of claim 28,
wherein the temporal development of the voltage at a capacitor connected upstream of the sensor means for measuring the process variable is measured for determining the instantaneous power loss.

30. The method of claim 28,
wherein the frequency of occurrence of sensor excitements is determined without performing a measurement.

31. The method of claim 26,
wherein said method is realized in a measuring device including a sensor means, in which the distance from a filling product surface of a filling product present in a receptacle is measured by means of ultrasonic pulses.

32. The method of claim 26,
wherein said method is realized in a measuring device including a sensor means, in which the distance from a filling product surface of a filling product present in a receptacle is measured by means of radar pulses.